



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,311	06/02/2005	Min-Chul Cho	0630-2329PUS1	8400
2292	7590	01/10/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			DUONG, THO V	
			ART UNIT	PAPER NUMBER
			3753	
DATE MAILED: 01/10/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Pat

Office Action Summary	Application No. 10/537,311	Applicant(s) CHO ET AL.	
	Examiner Tho v. Duong	Art Unit 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/2/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

Figures 1 and 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: reference number (52) to indicate partition wall, on page 6, line 15, in the specification is not shown. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Art Unit: 3753

The disclosure is objected to because of the following informalities: on page 8, at line 3, “nonwaven fabric” should read as “non-woven fabric”.

Appropriate correction is required.

Claim Objections

Claim 1 is objected to because of the following informalities: at line 6 “a heat exchanging elements” should read as “heat exchanging elements”. Appropriate correction is required.

Claim 4 is objected to because of the following informalities: at line 2, “the heat exchange element” should read as “the heat exchanging elements”.

Claim 6 is objected to because of the following informalities: at line 2, “nonwaven” should read as “non-woven”.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation “the case” in line 4. There is insufficient antecedent basis for this limitation in the claim.

Art Unit: 3753

Claim 5 recites the limitation "the inner side of the curved heat exchanging elements" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claims 5-6 are further rejected as can be best understood by the examiner in which claim 5 depends on claim 3, which provides a proper antecedent basis of the curved heat exchanging element subject matter in claim 5.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over W. F. Jetter (US 2,802,646). Jetter discloses (figures 1-5 and column 1, lines 41-46) a heat exchanging system comprising a heat exchanging housing; a rotor post (14) supported at one side of the case; heat exchanging elements (11,16,18) mounted at an outer circumferential surface of the post at regular interval, and performing a heat-exchanging operation of air and gas while being rotated by blow force of air and gas; and a support rib (10) is mounted at an outer circumferential surface of the heat exchanging elements in order to support so that the heat exchanging elements are arranged at regular intervals. Regarding the indoor air and outdoor air, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of

Art Unit: 3753

material or article worked upon by a structure being claimed does not impart patentability to the claims.” In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). In this instant case, the material of fluid such as indoor air and outdoor air or gas or other type of working fluid worked upon by the regenerative heat exchange apparatus does not differentiate the claimed apparatus from the prior art. Jetter further discloses (figures 3-5) that the heat exchanging elements (16,18) having curved surface (corrugation), wherein the curved surface faces the direction of fluid flow to impart enough force to rotate the rotor.

Claims 2-3 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over W. F. Jetter in view of Strindehag (US 4,084,633). Jetter substantially discloses all of applicant’s claimed invention as discussed above except for the limitation that the rotor post comprises of a hub and a shaft. Strindehag discloses (figures 1a-1b) a rotary regenerative heat exchange device that has heat exchanging elements (7,8) mounted on a hub (2), which is in turn formed at an outer surface of a rotational shaft (3) so that the heat exchanging elements is able to rotate by rotating of a smaller shaft. Strindehag further discloses (column 1, lines 9-14) that the heat exchanging elements can be made of non-woven fabric such as paper, which reduces the overall weight of the regenerative heat exchanger. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Strindehag’s teaching in view of Jetter’s device for a purpose of rotating the heat exchanging elements with a smaller shaft and reducing the overall weight of the device.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bierwirth et al. (US 5,826,641) discloses an air conditioner with heat wheel.

Chagnot (US 5,238,052) discloses an air to air recouperator.

Berner et al. (US 5,050,667) discloses an air ventilation and heat exchange apparatus.

Niwa et al. (US 4,711,293) discloses ventilator of the heat exchange type.

Tengesdal (US 4,688,626) discloses a ventilation unit.

Penny et al. (US 3,978,912) discloses a regenerative heat exchanger.

Eisenstein (US 4,000,775) discloses a heat exchanger structure.

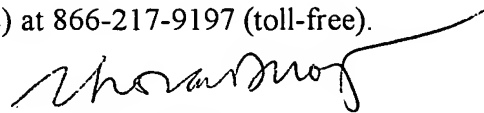
Lee (US 4,852,642) discloses heat exchange device with rotary cylinder.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F (first Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Blau can be reached on 571-272-4406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3753

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tho v Duong
Primary Examiner
Art Unit 3753



TD
January 6, 2006